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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,806	11/26/2003	Charles L. Compton	CCCI 0114 PUS	9770
50764	7590	11/09/2006	EXAMINER	
BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075			LEE, DAVID J	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,806

Applicant(s)

COMPTON ET AL.

Examiner

David Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>20061103</u> |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5, 6, 8-10, 12, 13, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Deng et al. (US Pub. No. 2002/0196491 A1).

Regarding claims 1 and 8, Deng teaches an apparatus for use in a hybrid fiber coax (HFC) network to provide the HFC forward path spectrum from the head end to a network fiber node (see fig. 4), the apparatus comprising: a head end modulator (in 102 of fig. 4) directly receiving a switchable digital data signal (from digital XC 106) and internally processing the switchable digital data signal (in 102 of fig. 4) to produce a modulated optical signal that directly drives the network fiber node (transmitted along 108 of fig. 4), the optical signal being modulated by a radio frequency signal (signals from the digital crossconnect 106 of fig. 4), wherein the radio frequency signal composes the HFC forward path spectrum and includes a plurality of channel slots (see paragraph 0031), and wherein the radio frequency signal carries the switchable digital data signal in the plurality of channel slots (see end of paragraph 0031: note that an exemplary signal can comprise 16 TDM time slots, each carrying 155 Mb/s; see also fig. 4: the optical signals λ_1 - λ_4 are produced using the CWDM lasers which modulate the switchable data signal received from the digital XC 106; it is noted that the signals from the

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digital XC 106 are electrical signals, which are in the RF spectrum – see paragraph 0026; the HFC forward path spectrum is understood as the relevant electromagnetic spectrum which is transmitted by the HFC network).

Regarding claims 2 and 9, Deng teaches the head end modulator generates an analog optical signal for the network fiber node (along fiber 108 of fig. 4).

Regarding claims 3 and 10, Deng teaches that the head end modulator processes the switchable digital data signal to dynamically allocate bandwidth to different services (the digital data signal from 106 is allocated by wavelength).

Regarding claims 5 and 12, Deng teaches that the switchable digital data signal is received in the form of a 10 Gige signal (fig. 4 – signal received at 10Gb/s).

Regarding claims 6 and 13, Deng teaches that the switchable digital data signal is received as a single digital data signal input (from 106 of fig. 4).

Regarding claim 20, Deng teaches that the RF spectrum includes a plurality of channel slots in the form of frequency ranges (see paragraph 0031).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 14-16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng.

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Regarding claims 7 and 14, Deng teaches the limitations of claims 1 and 8 but does not expressly disclose that the switchable digital data signal is received as a plurality of digital data signal inputs. However, it would have been obvious to a skilled artisan at the time of invention to configure the input so as to received the signal from a plurality of inputs in order to allow reception from different networks/locations.

Regarding claim 15, Deng teaches the limitations of claim 1 including the limitation wherein the modulator processes its received switchable digital data signal to dynamically allocate bandwidth to different services to provide an essentially narrow cast approach among the plurality of modulators (the digital data signal from 106 is allocated by wavelength). Deng does not specifically disclose a plurality of modulators to receive the digital data signal and produce the HFC forward path spectrum. However, it is well known in view of admitted prior art that using a plurality of modulators, instead of a single modulator, to transmit a forward path spectrum is well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to have a plurality of modulators in the network system of Deng in order to transmit and receive signals to multiple customer premises at the same central office, so as to effectively handle high capacity traffic in a cost efficient manner. This is taken to be admitted prior art because applicant failed to traverse the examiner's assertion of official notice.

Regarding claim 16, Deng teaches the head end modulator generates an analog optical signal for the network fiber node (along fiber 108 of fig. 4).

Regarding claim 18, Deng teaches that the switchable digital data signal is received in the form of a 10 GigE signal (fig. 4 – signal received at 10Gb/s).

Regarding claim 19, Deng teaches that the switchable digital data signal is received as a single digital data signal input (from 106 of fig. 4).

5. Claims 4, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deng in view of Applicant's prior art.

Regarding claims 4, 11, and 17, Deng teaches the limitations of claims 1, 8, and 15 but does not expressly disclose that the switchable digital data signal is received in the form of a 1GigE signal. However, digital data received by a central office at a 1GigE level is well known in the art. Applicant's prior art discloses that signals at switchable forms such as 1GigE or 10GigE is well known (pg. 1, lines 24-26). It would have been obvious to one of ordinary skill in the art at the time of invention to receive signals in 1GigE in order to make use of its cost-effectiveness and to take advantage of the bandwidth capabilities.

Response to Arguments

6. Applicant's arguments filed on 9/14/2006 have been fully considered but they are not persuasive.

Applicant argues that Deng fails to teach "an optical signal modulated by an RF signal that carries a digital data signal" and an "optical signal modulated with a radio frequency signal which includes a plurality of channel slots that carry a switchable digital data signal (see 4th paragraph of pg. 7 of Applicant's Remarks). Examiner respectfully disagrees.

It would be useful to first define the phrase "HFC forward path spectrum." As understood in view of the specification, the HFC forward path spectrum is the portion of the

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electromagnetic spectrum that is transmitted over a hybrid-fiber coax network; i.e. – any signal transmitted over an HFC network is considered as part of the HFC forward path spectrum.

Hence, it is clear from Deng's disclosure of the HFC network that the signals being transmitted over link 108 (of Fig. 4) comprise an HFC forward path spectrum. Furthermore, it would also be useful to note the understood definition of "modulation." According to knowledge of one skilled in the art, any electrical signal converted to an optical signal can be reasonably understood as having been optically modulated. For the sake of argument, even if Deng did not expressly disclose that the RF signals from the digital cross connect 106 were optically "modulated", it can be deduced that since the RF signals are converted into optical signals by the CWDM lasers in central office 102, the signals can be reasonably understood to have been modulated into the optical domain.

In view of the above, it is noted that Deng specifically teaches an optical signal modulated by an RF signal that carries a digital data signal. Applicant's attention is directed to Figure 4. Since the signals from digital cross connect 106 are digital and are located in the frequency domain, they are reasonably understood as RF signals carrying digital data signals. These signals are then received by central office 102 where they are optically modulated using the CWDM lasers, as illustrated. Accordingly, it is the Examiner's position that Deng specifically and expressly teaches "an optical signal modulated by an RF signal that carries a digital data signal" as claimed. It is also noted that the RF signal emerging from DXC 106 is switchable (note the router in remote node 112 of Fig. 4) and that it includes a plurality of channel slots (see paragraph 0031).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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